

# Svetloe Radio Astronomical Observatory

*Sergey Smolentsev, Ismail Rahimov*

## Abstract

This report summarizes information on recent activities at the Svetloe Radio Astronomical Observatory (SvRAO) in 2009. The report provides also an overview of current geodetic VLBI activities and gives an outlook for the next year.

## 1. General Information

Svetloe Radio Astronomical Observatory (SvRAO) was founded by the Institute of Applied Astronomy (IAA) as the first station of the Russian VLBI network QUASAR.

The sponsoring organization of the project is the Russian Academy of Sciences (RAS). The Svetloe Radio Astronomical Observatory is situated near Svetloe village of Priozerski district of the Leningrad region (see Table 1). The geographic location of the observatory is shown on the IAA RAS Web site: <http://www.ipa.nw.ru/PAGE/rusipa.htm>. The basic instruments of the observatory are a 32-m radio telescope and technical systems for VLBI observations (see Fig. 1).



Figure 1. Svetloe observatory.

Table 1. Svetloe Observatory location and address.

Longitude	29°47'
Latitude	60°32'
Svetloe Observatory	
Leningrad region, Priozerski district	
188833 Russia	
rahimov@urania.rtf32s.nw.ru	

## 2. Technical and Scientific Information

Table 2. Technical parameters of the radio telescope.

Year of construction	2000
Mount	AZEL
Azimuth range	$\pm 270^\circ$ (from south)
Elevation range	from $-5^\circ$ to $95^\circ$
Maximum azimuth - velocity - tracking velocity - acceleration	1.5 $^\circ/s$ 1.5 $'/s$ 0.2 $^\circ/s^2$
Maximum elevation - velocity - tracking velocity - acceleration	0.8 $^\circ/s$ 1.0 $'/s$ 0.2 $^\circ/s^2$
Pointing accuracy	better than $10''$
Configuration	Cassegrain (with asymmetrical subreflector)
Main reflector diameter	32 m
Subreflector diameter	4 m
Focal length	11.4 m
Main reflector shape	quasi-paraboloid
Subreflector shape	quasi-hyperboloid
Surface tolerance of main reflector	$\pm 0.5$ mm
Frequency capability	1.4–22 GHz
Axis offset	$+7.5 \pm 0.5$ mm

## 3. Technical Staff

Ismail Rahimov — Observatory chief,  
 Tatiana Andreeva — main operator,  
 Andrey Mihailov — FS, pointing system controls.

## 4. Current Status and Activities

Svetloe observatory participates in IVS and Russian Domestic VLBI observations. During 2009 Svetloe station participated in 45 24-hour IVS-R4, IVS-R1, IVS-T2, EURO, and R&D sessions and in 21 IVS Intensive sessions (Table 3).

SvRAO observed nineteen daily sessions in the frame of domestic program Ru-E for VLBI determination of all Earth orientation parameters, and ten 4 1-hour Ru-U sessions for obtaining Universal Time. Since September the 2009 Ru-U sessions have been performed in e-VLBI mode.

Table 3. List of IVS sessions observed at SvRAO in 2009.

Month	IVS-Int	IVS-R1	IVS-R4	IVS-T2	R&D	EURO
January	2	1	3			
February	2	2	3		1	
March	2	2	2			
April	2	2	3	1		
May	2		3			
June	2	1	2			
July	2		4			1
August	2	3	3			
September	2	1				
October	2	1	4			
November	1	1	1			
December						
Total	21	14	28	1	1	1

After 12 November 2009 SvRAO stopped observing due to an antenna problem. The antenna will become operable after repair work.

## 5. Future Plans

Our plans for the coming year are the following:

- Participation in weekly domestic observational sessions for obtaining Earth orientation parameters and in weekly 1-hour e-VLBI sessions for UT1 determination.
- Continuation of geodetic control of the antenna parameters.
- GPS Javad receiver installation.
- Mounting LRS “Sazhen-TM” in 2010–2011.
- Participation in EVN observations.